

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



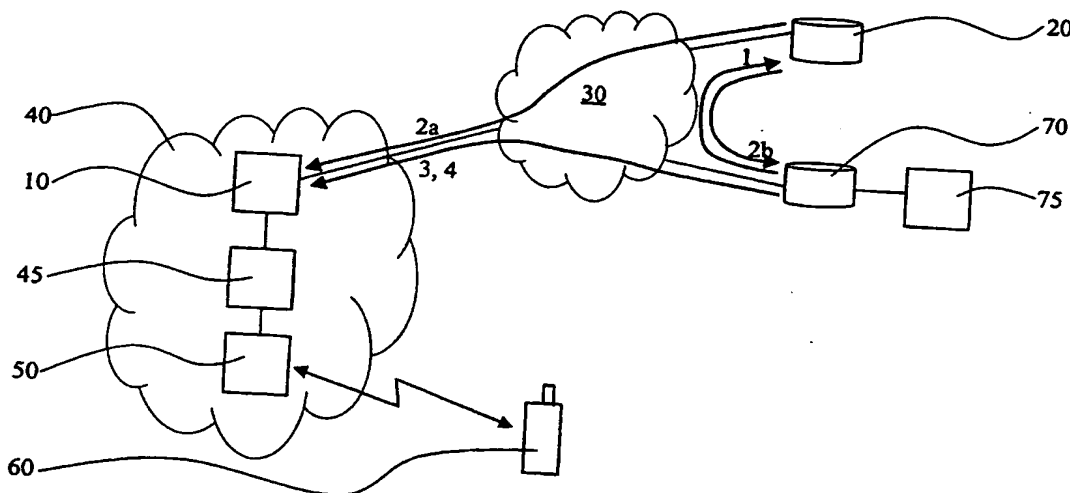
(43) International Publication Date  
18 April 2002 (18.04.2002)

PCT

(10) International Publication Number  
**WO 02/32104 A1**

- (51) International Patent Classification<sup>7</sup>: **H04M 15/10**,  
H04Q 7/38
- (21) International Application Number: PCT/SE01/02199
- (22) International Filing Date: 10 October 2001 (10.10.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
0003708-5 13 October 2000 (13.10.2000) SE
- (71) Applicant (for all designated States except US): **TELIA AB (publ)** [SE/SE]; Mårbackagatan 11, S-123 86 Farsta (SE).
- (72) Inventor; and  
(75) Inventor/Applicant (for US only): **ERIKSSON, Jonas** [SE/SE]; John Ericssongatan 16, S-652 22 Karlstad (SE).
- (74) Agent: **SVENSSON, Peder**; Telia Research AB, Vitsandsgatan 9, S-123 86 Farsta (SE).
- (81) Designated States (national): EE, LT, LV, NO, US.
- (84) Designated States (regional): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- Published:  
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PAYMENT SERVICE FOR TRANSMISSION OF INFORMATION



(57) Abstract: The present invention relates to methods and means for providing a third party connected to a server on a packet data network, such as the Internet, with a service of transferring information originating from the third party to a mobile user in a wireless communication network free of charge for the mobile user and at the expense of the third party. The packet data network and the wireless communication network are interconnected by a gateway node which will transfer information to the mobile user, free of charge to the user, if a match is found between a first key received from an e-commerce site and a second key received from the third party. A match between the keys indicates that the e-commerce site has administrated either a pre-payment of the transmission, or the initialisation a charging procedure to be completed after the transmission is completed.

WO 02/32104 A1

PAYMENT SERVICE FOR TRANSMISSION OF INFORMATIONTechnical field of the invention

The present invention relates to methods, a node and a system for providing a third party connected to a server on a packet data network, such as the Internet, with a service of transferring information originating from the third party to a mobile user in a wireless communication network free of charge for the mobile user and at the expense of the third party.

10

Technical background

Today, more and more mobile data services make use of the so called "push"-technology. Typically, to push data to a user means that a system or network automatically provides the user with some kind of information. Often this information is of the kind which is desired by the user, and therefore defined by a set of criteria in order to meet the desires of the user. However, in this application, pushing of data relates to any information, such as desired or non-desired information or advertising, that is transferred to a user on the initiative of a transmitting party.

The push-technology is today perhaps most widely used for pushing information to a stationary user, such as a user operating a computer connected to the Internet. However, with the rapid growth of mobile communications, in combination with the flexibility of being able to be reached by pushed information at any location, the push-technology is becoming more and more interesting for users being connected to a wireless communication network. For example, the push technology can be realised by way of pushing short messages, e.g. using the SMS service (Short Message Service) provided by a GSM network

(Global System for Mobile Communication), to a mobile user.

The technology enhancements of the wireless communication networks further encourage the use of push-  
5 technology within these networks. The evolution of higher bandwidth and/or packet data transmissions to the wireless terminals of the mobile users facilitate communication with other data networks, such as the Internet. Examples of wireless communication network with  
10 higher bandwidths and with support for packet data transfer to the wireless terminal of a mobile user are GSM networks providing GPRS services (General Packet Radio Service), or the forthcoming new generation of wireless communication networks known as UMTS (Universal  
15 Mobile Telephony Standard) or 3G networks.

When a packet switched connection, rather than a circuit switched connection, is used for transferring data to/from a mobile user terminal, which for example is the case when introducing GPRS in a GSM system, it will  
20 be possible for a mobile user to be constantly connected not only to the wireless network, but also to the Internet or some other packet data network via the wireless network and an interconnecting gateway. As the mobile user is constantly connected, the user will be  
25 charged for the actual bandwidth he uses. This means that the mobile user will be charged for each packet transmitted or received by the user, rather than for the time duration of the data transfer.

One drawback of pushing, or transferring,  
30 information as packet data to a wireless terminal of a mobile user is, thus, that the user will be charged by the operator of the wireless network for the number data packets received. In many cases however, it may be in the interest of the originator of the information, if the  
35 information could be transferred at the expense of the originator and free of charge for the receiving mobile user. This would not only be relevant when it comes to

advertising, but in any situation where the originator has an interest in that the mobile user has knowledge of the information transferred.

Thus, it would be desired to be able to charge an information originator for the data packets transmitted to a mobile user. However, when the information originates from a packet data network which is interconnected with the wireless communication network, the originator may be any party having access to the packet data network. Thus, a drawback is that the originator does not need to have some kind of established relationship with the operator of the mobile communication network, or any other operator of a mobile network, which means that there is no mechanism that can be used by the operator for charging all possible originators on the packet data network for the packet data transmission to the mobile user.

#### Summary of the invention

The object of the present invention is to eliminate at least one of the above mentioned drawbacks.

Another object is to enable any information content provider to transfer, or push, information to a mobile user at own expense for the information provider, without the need for some kind of direct or indirect relationship between the operator, with which the mobile user has his subscription, and the information provider.

According to the present invention, these objects are achieved by the methods, a gateway node and a system having the features as defined in the appended claims and representing different aspects of the invention.

The present invention is based on the idea that an e-commerce site administrates the charging of any information content provider on a packet data network that wishes to transfer packet data to a mobile user. The operator of the wireless network is informed by the e-commerce site of the administration procedures before

transmitting the information, received from the content provider via a packet data network, to a mobile user free of charge for the mobile user.

Thus, an operator of the wireless network and the  
5 gateway node can be confident in that the e-commerce site, or e-commerce server application, already has charged the originator of the information for the data transmission to the mobile user, or, that a charging procedure has been initialised by the e-commerce site for  
10 completion after the packet data transmission to the mobile user is completed.

Hence, the present invention enables an operator of a wireless communication network to charge a third party for the service of transferring information, originating  
15 from the third party, to a mobile user having a subscription with the operator. This means that the invention provides a mechanism, or system, with which any content provider can transfer information to a mobile user at the content provider's own expense. The content  
20 provider, or third party, does not need to have, or to establish, some kind of relationship with the operator of the wireless network, all he needs to do is to adopt to the payment procedures defined by the e-commerce site.

#### 25 Brief description of the drawings

Further features and advantages of the invention will become more readily understood from the following detailed description of specific embodiments of the invention when taken in conjunction with the accompanying  
30 drawings.

In the drawings the sole figure, Fig.1, is a block diagram illustrating an exemplifying embodiment of the invention, both with respect to its operation, as well as with respect to its overall system environment.

35

Detailed description of preferred embodiments

With reference to Fig.1 an exemplifying embodiment of the invention will now be described. The invention is here illustrated in an exemplifying system environment.

5 In Fig. 1, a gateway node 10 and a server 20 of an e-commerce site are both connected to a packet data network 30, here exemplified with the Internet. The gateway node 10 is further connected to a wireless communication network 40, here exemplified by a GSM network which has  
10 been arranged to include a GPRS service. The Base Station System 50 of the GSM network is explicitly indicated, which base station system communicates over the air with a wireless terminal 60 of a mobile user having a subscription with the operator of the GSM network 40.  
15 Connected to the Internet 30 is furthermore a third party server 70. The third party server, and thus its users 75 being provided with the service of being able to transfer packet data to the wireless terminal 60, free of charge for the subscription used by the terminal and at the  
20 expense of the user/third party 75.

Thus, in this described embodiment, a GSM network is exploited for the information transfer between the gateway node 10 and the a wireless terminal 60. The architecture and operation of a GSM Network is well known  
25 to persons skilled in the art, and, since it is of no relevance to the present invention, will not be further described herein. The packet data transferring capabilities of the GSM network is provided by the General Packet Radio Service (GPRS). GPRS is a  
30 standardisation from the European Telecommunications Standard Institute (ETSI) on packet data in GSM systems.

Also the GPRS standardisation is well known to a person skilled in the art and will not be elaborated on in this application. However, some of the its most basic  
35 features will be mentioned. A GSM system which includes a GPRS service for handling packet data traffic is equipped with a Serving GPRS Support Node (SGSN) 45 and a Gateway

GPRS Support Node (GGSN) 10. The SGSN 45 is the node within the GSM infrastructure that sends and receives packet data to and from the wireless terminal via the Base Station System 50. The SGSN also transfers packets  
5 between the GPRS terminals, i.e. the wireless terminal 60, and the GGSN 10. Furthermore, it handles PDP contexts (Packet Data Protocol) for connections with any server in any external packet data network, such as with server 70 connected to the Internet 30. The GGSN 10, which is  
10 connected to the SGSN 45, is the gateway of the GSM/GPRS system to external packet data networks and routes packets between the SGSN 45 and an external packet data network, e.g. the Internet 30.

Thus, from the above description it is clear that in  
15 this embodiment, the gateway node of the present invention and the GGSN node of the GSM network is one and the same node. However, the gateway node of the present invention could alternatively be a node interconnecting the GGSN node with the external packet data network.

20 The operation of the overall system in Fig. 1, and its included embodiment of the present invention, will now be described. The description of the operation is made step by step with reference to the numbered arrows of Fig. 1.

25 In step 1, a user 75 of the third party server 70 (which user hereinafter is called third party) transmits a request over the Internet 30 to the e-commerce site server 20, thereby requesting the e-commerce site for permission to use an information transfer payment  
30 service, or push data payment service, which is administrated by the e-commerce site. Prior to making such a request, measures must have been taken so that the e-commerce site can charge the third party 75, for example via an account that the third party 75 has at the  
35 e-commerce site, a third party's external account in a bank, via a pre-registered or transferred third party's credit card number, or via any other state of the art

mechanism that can be employed by the e-commerce site for charging a user. The charged amount will be transferred to an account that the operator of the gateway node 10 has at the e-commerce site 20, or to an operator's  
5 external account in a bank. Furthermore, before effectuating the request, it is preferred that the e-commerce site use some kind of state of the art authentication procedure for identifying the third party. It should be noted that the e-commerce site employed by  
10 the present invention is a general and open e-commerce site which is adapted for use in connection with the invention.

According to the invention, the third party 75 may choose from different charging schemes, or the e-commerce  
15 site may be configured to use one of a number of charging schemes. Examples of such schemes, called a), b) and c), are briefly described below.

a) A first charging scheme is based on that the third party 75 in the request to the e-commerce site 20  
20 indicates a number of data bytes or data packets, or some equivalent measure of the information amount, that he wishes to transfer to a wireless terminal 60. The e-commerce site will then immediately charge the third party 75 for the number of data bytes or packets and  
25 transfer a corresponding amount of money to the operator of the gateway node 10. If the request of information transfer relates to IP telephony, the third party could in this scheme alternatively be charged for a time duration indicated in the request, e.g. for a pre-defined  
30 number of minutes of a IP telephony call to be terminated in a wireless terminal 60.

b) A second charging scheme uses a running account. In this scheme the gateway node 10 will, simultaneously with an ongoing information transfer to a wireless  
35 terminal, send charging messages back to the e-commerce site 20 on a regular basis. Each such charging message indicates to the e-commerce site 20 that the third party



75 should be charged a given small amount and each message is sent from the gateway node as soon as a certain number of bytes has been transmitted, or a certain amount of time has elapsed.

5           c) In a third scheme, the e-commerce site 20 simply identifies the third party. The gateway node 10 will at a later stage measure the total number of bytes or packets transferred to the wireless terminal, or, in case of IP telephony which terminates in the wireless terminal,  
10 measures the total time duration for the IP telephony call. When the information transfer has ended, the gateway node 10 sends a charging message to the e-commerce site 20 indicating the total amount that the third party 75 should be charged.

15           Continuing now with the step by step operation, the e-commerce site will in step 2, after having received the above request and authenticated the third party 75, initiate one of the charging schemes described above. The e-commerce site will also generate a pair of keys, either  
20 symmetrical keys or asymmetrical keys. The use of encryption keys and their associated algorithms should be well known to a person skilled in the art. According to the invention, a pair of keys is generated for each transaction using the payment service, i.e. for each  
25 third party request received by the e-commerce site. Regardless of whether these keys are symmetrical or asymmetrical, they will be invalid after the information has been transferred and the third party has been charged for the transmission.

30           Step 2 further includes transmission of the generated keys, preferably over secure or encrypted connections, over the Internet 30 to the third party 75 and the gateway node 10. A first key of the pair of keys is transmitted, 2a, to the gateway node 10. The reception  
35 of a key by the gateway node 10 will indicate to the node that someone, i.e. the third party, has acquired the right to transfer information to the wireless terminal 60

free of charge for the subscription associated therewith. As discussed above, the right is either acquired by pre-payment or via an identification of the third party for later payment during an ongoing, or after a completed, transmission. If the right has been acquired by pre-payment, the message from the e-commerce site to the gateway node that includes the first key will further include a measure of the amount of information, e.g. in data bytes or transferring time, for which the third party has paid. As mentioned, step 2 furthermore includes transmission, 2b, of the second key of the pair of keys to the third party. If asymmetrical keys are used, it is the public key that is transmitted to the third party 75 and the private key to the gateway node 10. The transmission, 2a and 2b, of the generated keys, the first key to the gateway node and the second key to the third party, is preferably done over encrypted and/or secure connections.

In step 3 the third party 75 transmits a request to the gateway node, i.e. to the GGSN of the GSM network, requesting the gateway/GGSN node to allow information transfer to the wireless terminal free of charge for the associated subscription. This request from the third party includes the second key previously transferred from the e-commerce site 20 to the third party 75. The gateway node will then compare the received second key with the first key previously received from the e-commerce site 20 and stored by the gateway node. If a match is found, the gateway node 10 will accept transmission of the information received from the third party 75 to the wireless terminal 60 free of charge for the associated subscriber, i.e. the mobile user.

In step 4, the gateway node 10 receives information in the form of packet data from the third party 75 for further transmission to the wireless terminal 60. The information will be transferred as packets over the GSM network 40 and its provided GPRS service. Preferably, the

10

gateway/GGSN node is configured to use the Wireless Application Protocol for transmission of application data, and the GPRS service as a bearer for the transmission. If the information transfer was pre-paid, the gateway node 10 will stop relaying information to the wireless terminal 60 after a certain number of data bytes, or a certain time period in case of IP telephony, corresponding to the amount of information for which the third party 75 made a payment at the e-commerce site 20.

10 If, in step 2a, the message with the first key to the gateway node 10 includes information that the third party 75 has been identified and requested to be charged during ongoing transmission, the gateway node 10 will count the number of data bytes, or data packets, or time duration of the transmission. Simultaneously with the transmission to the wireless terminal, the gateway node 15 10 will continuously transmit charging messages to the e-commerce site 20. Each such charging message represents a small amount of money which should be charged the third party 75. This kind of charging is similar to the continuous ongoing charging by a pay phone during a conversation.

Alternatively, if the message including the first key indicates to the gateway node 10 that the third party 25 75 is to be charged after the transmission to the wireless terminal 60 has been completed, the gateway node 10 will count the number of data bytes/packets or time duration of transmission. After the transmission is completed, the gateway node 10 will generate and transmit one message to the e-commerce site 20 with information 30 regarding a total amount that the third party 75 should be charged. The total amount corresponding to the amount of information, measured in bytes/packets or transferring time, that has been received from the third party 75 by 35 the gateway node 10 and transmitted to the wireless terminal 60.

It will be appreciated that the information received by the gateway node 10 from the third party 75 in an alternative embodiment can be transmitted to the wireless terminal 60 as SMS messages by utilising the Short  
5 Message Service provided by the GSM network 40. The modifications of the above described embodiments for adapting the transmission in step 5 to employ SMS messages will be apparent for a person skilled in the art.

CLAIMS

1. A method of a gateway node in connection with transferring of information to a mobile user in a wireless communication network free of charge for the mobile user, said information originating from a third party via a packet data network, such as the Internet, said gateway node being operatively connected to the packet data network and to the wireless communication network, wherein the method includes the steps of:
- 5 receiving, from an e-commerce site server via the packet data network, a first key indicating that someone has acquired the right to transfer information to the mobile user;
- 10 receiving, from the third party via the packet data network, a second key in connection with a request from the third party to transfer information to the mobile user; and
- 15 comparing said first and said second key; and transmitting, if a match is found in said comparing step, information received from the third party to the mobile user free of charge for the mobile user.
- 20
2. The method as claimed in claim 1, wherein said step of receiving a first key includes receiving a measure of the amount of information for which a transfer right has been acquired by way of pre-payment at the e-commerce site.
- 25
3. The method as claimed in claim 2, wherein said measure denotes a certain number of data bytes, or data packets, or a certain amount of transferring time, at disposal in said transmitting step.
- 30
4. The method as claimed in claims 1, wherein the amount of information transmitted in the transmitting step is measured, including the additional step of
- 35

13

transmitting a message to said e-commerce site indicating an amount of money to charge the third party.

5        5. The method as claimed in any one of claims 1 - 4, wherein the information of said transmitting step is transmitted to the mobile user as packet data.

10        6. The method as claimed in claim 5, wherein the mobile user is a GPRS or UMTS subscriber.

7. The method as claimed in any one of claims 1 - 6, wherein the transmitting step is performed by using the Wireless Application Protocol.

15        8. The method as claimed in any one of claims 1 - 6, wherein the information relates to IP telephony originating from said third party and terminating at a wireless terminal of said mobile user.

20        9. The method as claimed in any one of claims 1 - 8, wherein the transmitting step uses a Short Message Service for transmitting the information.

25        10. The method as claimed in any one of claims 1 - 9, wherein said first key and said second key are symmetrical keys.

30        11. The method as claimed in any one of claims 1 - 10, wherein said first key and said second key are a pair of asymmetrical keys, said first key being a private key and said second key being a public key.

35        12. A gateway node arranged in connection with transferring of information to a mobile user in a wireless communication network free of charge for the mobile user, said information originating from a third party via a packet data network, such as the Internet,

14

said gateway node being operatively connected to the packet data network and to the wireless communication network, wherein the gateway node includes:

5 first receiving means for receiving, from an e-commerce site server via the packet data network, a first key indicating that someone has acquired the right to transfer information to the mobile user;

10 second receiving means for receiving, from the third party via the packet data network, a second key in connection with a request from the third party to transfer information to the mobile user; and

comparing means for comparing said first and said second key; and

15 transmitting means for transmitting, if a match is found by said comparing means, information received from the third party to the mobile user free of charge for the mobile user.

20 13. The gateway node as claimed in claim 12, wherein said first receiving means further is arranged for receiving a measure of the amount of information for which a transfer right has been acquired by way of pre-payment at the e-commerce site.

25 14. The gateway node as claimed in claim 13, wherein said measure denotes a certain number of data bytes, or data packets, or a certain amount of transferring time, at disposal for said transmitting means.

30 15. The gateway node as claimed in claims 12, wherein the transmitting means is arranged to measure the amount of information transmitted, and further arranged for transmitting a message to said e-commerce site indicating an amount of money to charge the third party.

35

16. The gateway node as claimed in any one of claims 12 - 15, wherein the information transmitted by said

15

transmitting means is transmitted to the mobile user as packet data.

17. The gateway node as claimed in claim 16, wherein  
5 the mobile user is a GPRS or UMTS subscriber.

18. The gateway node as claimed in any one of claims  
12 - 17, wherein the transmitting means is arranged to  
use the Wireless Application Protocol for the  
10 transmission.

19. The gateway node as claimed in any one of claims  
12 - 17, wherein the information transmitted by said  
transmitting means relates to IP telephony originating  
15 from said third party and terminating at a wireless  
terminal of said mobile user.

20. The gateway node as claimed in any one of claims  
12 - 19, wherein the transmitting means is arranged to  
20 use a Short Message Service for transmitting the  
information.

21. The gateway node as claimed in any one of claims  
12 - 20, wherein said first key and said second key are  
25 symmetrical keys.

22. The gateway node as claimed in any one of claims  
12 - 21, wherein said first key and said second key are a  
pair of asymmetrical keys, said first key being a private  
30 key and said second key being a public key.

23. The gateway node as claimed in any one of claims  
12 - 22, wherein all of said means included by the  
gateway node are processing and/or interface circuit  
35 means of a general purpose computer implementing the  
gateway node.



24. A method for providing a third party connected to a server on a packet data network, such as the Internet, with a service of transferring information originating from the third party to a mobile user in a wireless communication network free of charge for the mobile user, wherein the packet data network and the wireless communication network are interconnected by a gateway node, and wherein the method includes the steps of:

accepting, at an e-commerce site server, a request from the third party to use a payment service when transferring information to a subscriber in the wireless communication network;

generating, at the e-commerce server, a pair of matching keys consisting of a first key and a second key; transmitting, from the e-commerce server, said first key to the gateway node and the second key to said third party;

receiving, at the gateway node, said second key from the third party in connection with a request from the third party to transfer information to the mobile user;

comparing, at the gateway node, said first and said second key; and

transmitting from the gateway node, if a match is found in said comparing step, information received from the third party to the mobile user free of charge for the mobile user.

25. The method as claimed in claim 24, wherein said step of transmitting said first key includes transmitting a measure of the amount of information for which a transfer right has been acquired by way of pre-payment at the e-commerce site.

26. The method as claimed in claim 25, wherein said measure denotes a certain number of data bytes, or data

packets, or a certain amount of transferring time, at disposal in said step of transmitting to the mobile user.

27. The method as claimed in claims 24, wherein the amount of information transmitted in the step of transmitting to the mobile user is measured, including the additional step of transmitting a message to said e-commerce site indicating an amount of money to charge the third party.

10

28. The method as claimed in any one of claims 24 - 27, wherein the information of said step of transmitting to the mobile user is transmitted to the mobile user as packet data.

15

29. The method as claimed in claim 28, wherein the mobile user is a GPRS or UMTS subscriber.

30. The method as claimed in any one of claims 24 - 29, wherein the step of transmitting to the mobile user is performed by using the Wireless Application Protocol.

31. The method as claimed in any one of claims 24 - 29, wherein the information relates to IP telephony originating from said third party and terminating at a wireless terminal of said mobile user.

32. The method as claimed in any one of claims 24 - 31, wherein the step of transmitting to the mobile user uses a Short Message Service for transmitting the information.

33. The method as claimed in any one of claims 24 - 32, wherein said first key and said second key are symmetrical keys.

34. The method as claimed in any one of claims 24 - 33, wherein said first key and said second key are a pair of asymmetrical keys, said first key being a private key and said second key being a public key.

5

35. A system arranged to provide a third party connected to a server on a packet data network, such as the Internet, with a service of transferring information originating from the third party to a mobile user in a wireless communication network free of charge for the mobile user, wherein the packet data network and the wireless communication network are interconnected by a gateway node, and wherein the system includes:

a) an e-commerce site server including:  
accepting means for accepting a request from the third party to use a payment service when transferring information to a subscriber in the wireless communication network;

generating means for generating a pair of matching keys consisting of a first key and a second key; and

transmitting means for transmitting said first key to the gateway node and the second key to said third party, and

b) a gateway node including:

receiving means for receiving said second key from the third party in connection with a request from the third party to transfer information to the mobile user;

comparing means for comparing said first and said second key; and

transmitting means for transmitting, if a match is found in said comparing step, information received from the third party to the mobile user free of charge for the mobile user.

36. The system as claimed in claim 35, wherein said transmitting means for transmitting a first key further is arranged for transmitting a measure of the amount of

information for which a transfer right has been acquired by way of pre-payment at the e-commerce site.

37. The system as claimed in claim 36, wherein said  
5 measure denotes a certain number of data bytes, or data packets, or a certain amount of transferring time, at disposal for said means for transmitting to the mobile user.

10 38. The system as claimed in claims 35, wherein the means for transmitting to the mobile user is arranged to measure the amount of information transmitted to the mobile user, including the additional step of  
15 transmitting a message to said e-commerce site indicating an amount of money to charge the third party.

39. The system as claimed in any one of claims 35 - 38, wherein the information transmitted by said transmitting means for transmitting to the mobile user is  
20 transmitted as packet data.

40. The system as claimed in claim 39, wherein the mobile user is a GPRS or UMTS subscriber.

25 41. The system as claimed in any one of claims 35 - 40, wherein the transmitting means for transmitting to the mobile user uses the Wireless Application Protocol for the transmission.

30 42. The system as claimed in any one of claims 35 - 40, wherein the information relates to IP telephony originating from said third party and terminating at a wireless terminal of said mobile user.

35 43. The system as claimed in any one of claims 35 - 42, wherein the transmitting means for transmitting to

20

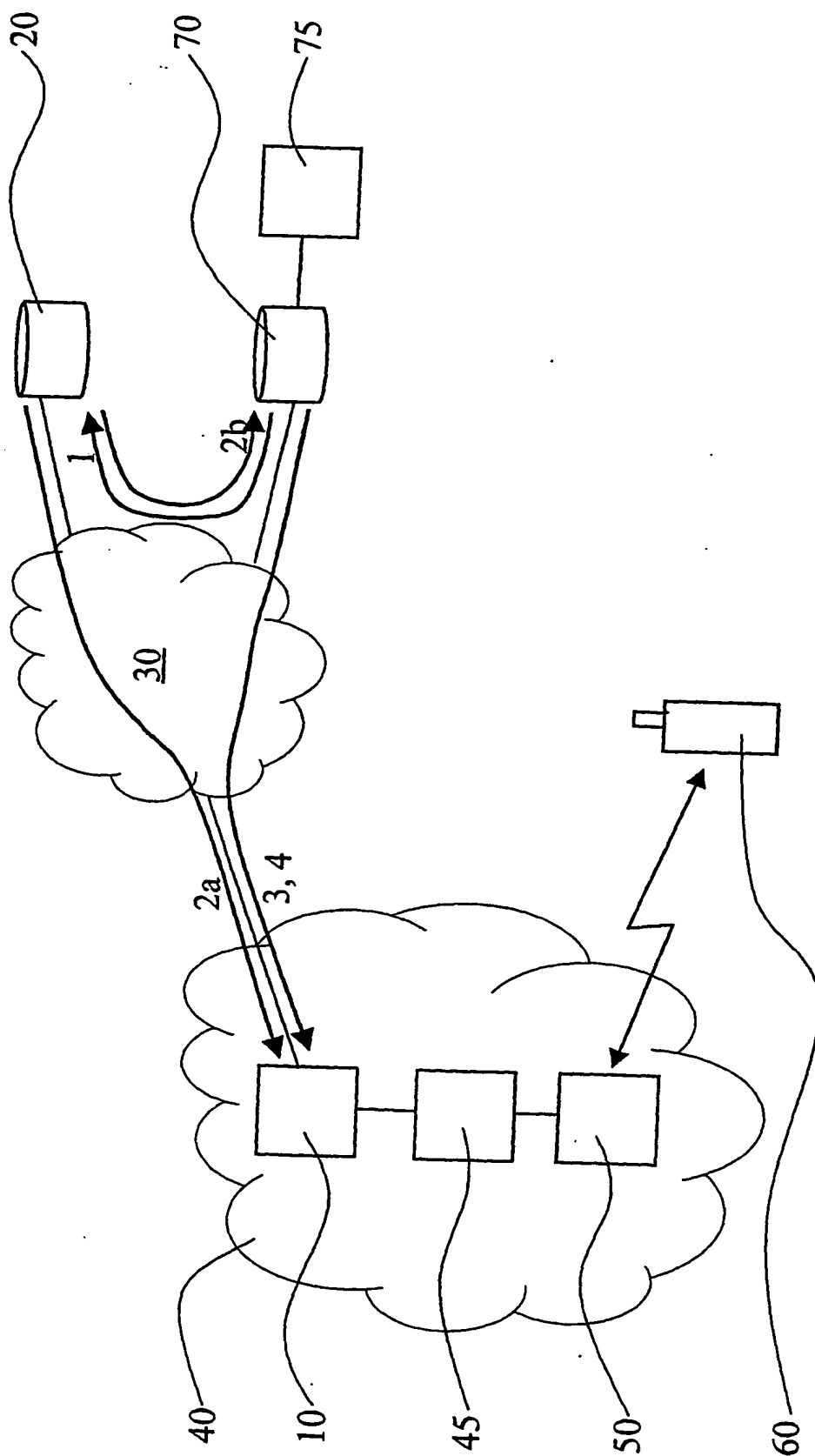
the mobile user uses a Short Message Service for the transmission.

44. The system as claimed in any one of claims 35 -  
5 43, wherein said first key and said second key are symmetrical keys.

45. The system as claimed in any one of claims 35 -  
10 44, wherein said first key and said second key are a pair of asymmetrical keys, said first key being a private key and said second key being a public key.

46. The system as claimed in any one of claims 35 -  
15 45, wherein all of said means included by the e-commerce site server are processing and/or interface circuit means of a general purpose computer implementing the server, and wherein all of said means included by the gateway node are processing and/or interface circuit means of a general purpose computer implementing the gateway node.

20



**FIG. 1**

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 01/02199

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04M 15/10, H04Q 7/38

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04M, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 0044130 A1 (NETCOM AB), 27 July 2000 (27.07.00), page 3, line 5 - page 4, line 2  --	1-46
A	WO 9941922 A1 (TELIA AB), 19 August 1999 (19.08.99), page 7, line 28 - line 36  -----	1-46

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

18 January 2002

Date of mailing of the international search report

23 -01- 2002

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Tomas Erlandsson/MN  
Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

Information on patent family members

06/11/01

International application No.

PCT/SE 01/02199

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	0044130	A1	27/07/00	AU	2335900 A	07/08/00
				AU	2650599 A	06/09/99
				BR	9907838 A	24/10/00
				EP	1056903 A	06/12/00
				SE	9900162 D	00/00/00
-----						
WO	9941922	A1	19/08/99	AU	6430198 A	12/10/98
				BR	9808140 A	28/03/00
				EP	1003524 A	31/05/00
				EP	1057352 A	06/12/00
				HU	0000850 A	28/09/00
				NO	994431 A	13/09/99
				NO	20003715 A	17/08/00
				PL	335700 A	08/05/00
				SE	513373 C	04/09/00
				SE	9800455 A	18/08/99
US	6197341 B	06/03/01				
-----						